

CLAIMS



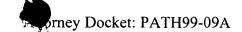
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- 1. An isolated nucleic acid comprising a nucleotide sequence encoding an *S. epidermidis* polypeptide selected from the group consisting of SEQ ID NO: 3773 SEQ ID NO: 7544.
- 2. A recombinant expression vector comprising the nucleic acid of claim 1 operably linked to a transcription regulatory element.
- 10 3. A cell comprising a recombinant expression vector of claim 2.
 - 4. A method for producing an *S. epidermidis* polypeptide comprising culturing a cell of claim 3 under conditions that permit expression of the polypeptide.

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- 5. An isolated nucleic acid comprising a nucleotide sequence encoding an S. epidermidis polypeptide or a fragment thereof, said nucleic acid selected from the group consisting of SEQ ID NO: 1 SEQ ID NO: 3772.
- 6. A recombinant expression vector comprising the nucleic acid of claim 5 operably linked to a transcription regulatory, element.
 - 7. A cell comprising a recombinant expression vector of claim 6.
- 8. A method for producing an *S. epidermidis* polypeptide comprising culturing a cell of claim 7 under conditions that permit expression of the polypeptide.





Sub-3

9. A probe comprising a nucleotide sequence consisting of at least eight contiguous nucleotides of a nucleotide sequence selected from the group consisting of SEQ ID NO: 1 - SEQ ID NO: 3772.

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- 10. An isolated nucleic acid comprising a nucleotide sequence of at least eight nucleotides in length, wherein the sequence is hybridizable to a nucleic acid having a nucleotide sequence selected from the group consisting of SEQ ID NO: 1 SEQ ID NO: 3772.
- 11. A vaccine composition for prevention or treatment of an S. epidermidis
 10 infection comprising an effective amount of a nucleic acid of claim 5 and a pharmaceutically acceptable carrier.
 - 12. A vaccine composition of claim 11, further comprising an adjuvant.
- 13. A vaccine composition of claim 11, further comprising one or more additional active ingredients.
- 14. A method of treating a subject for S. epidermidis infection comprising administering to a subject a vaccine composition of claim 11, such that treatment of S.
 20 epidermidis infection occurs.
 - 15. A method of claim 14, wherein the treatment is a prophylactic treatment.
 - 16. A method of claim 14, wherein the treatment is a therapeutic treatment.
- 25 17. A recombinant or substantially pure preparation of an *S. epidermidis* polypeptide or a fragment thereof, wherein said polypeptide is selected from the group consisting of SEQ ID NO: 3773 SEQ ID NO: 7544.

18. A vaccine composition for prevention or treatment of an *S. epidermidis* infection comprising an effective amount of an *S. epidermidis* polypeptide of claim 17 and a pharmaceutically acceptable carrier.

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- 19. A vaccine composition of claim 18, further comprising an adjuvant.
- 20. A vaccine composition of claim-18, further comprising one or more additional active ingredients.

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- 21. A method of treating a subject for *S. epidermidis* infection comprising administering to a subject a vaccine composition of claim 18, such that treatment of *S. epidermidis* infection occurs.
- 15 22. A method of claim 21, wherein the treatment is a prophylactic treatment.
 - 23. A method of claim 21, wherein the treatment is a therapeutic treatment.
- 24. A method for detecting the presence of a *Staphylococcus* nucleic acid in a 20 sample comprising:
 - (a) contacting a sample with a nucleic acid of claim 5 under conditions in which a hybrid can form between the probe and a *Staphylococcus* nucleic acid in the sample; and
- (b) detecting the hybrid formed in step (a), wherein detection of a hybrid indicates the presence of a *Staphylococcus* nucleic acid in the sample.

- 25. A computer readable medium having recorded thereon the nucleotide sequences depicted in SEQ ID NO: 1 SEQ ID NO: 3772 or fragments thereof.
- 26. A computer based system for identifying fragments of the *Staphylococcus* genome of commercial importance comprising the following elements;
 - a) a data storage means comprising the nucleotide sequences SEQ ID NO: 1 SEQ ID NO: 3702 or fragments thereof,
 - b) a search means for comparing a target sequence to the nucleotide sequences of the data storage means of step (a) to identify homologous sequences, and;
- 10 c) a retrieval means for obtaining said homologous sequences(s) of step (b).
 - 27. A computer based system for identifying fragments of the *Staphylococcus* plasmids of commercial importance comprising the following elements;
- a) a data storage means comprising the nucleotide sequences SEQ ID NO:3703 SEQ ID NO: 3772 or fragments thereof,
 - b) a search means for comparing a target sequence to the nucleotide sequences of the data storage means of step (a) to identify homologous sequences, and;
- c) a retrieval means for obtaining said homologous sequences(s) of step 20 (b).
 - 28. A method of identifying commercially important nucleic acid fragments of the *Staphylococcus* genome comprising the step of comparing a database comprising the nucleotide sequences SEQ ID NO: 1 SEQ ID NO: 3772 or fragments thereof with a target sequence to obtain a nucleic acid molecule comprised of a complementary nucleotide sequence to said target sequence, wherein said target sequence is not randomly selected.

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- 29. A method of identifying commercially important nucleic acid fragments of the *Staphylococcus* plasmids comprising the step of comparing a database comprising the nucleotide sequences SEQ ID NO: 3703 SEQ ID NO: 3772 or fragments thereof with a target sequence to obtain a nucleic acid molecule comprised of a complementary nucleotide sequence to said target sequence, wherein said target sequence is not randomly selected.
- 30. A method for identifying an expression modulating fragment of the *Staphylococcus* genome comprising the step of comparing a database comprising the nucleotide sequences SEQ ID NO: 1 SEQ ID NO: 3772 or fragments thereof with a target sequence to obtain a nucleic acid molecule comprised of a complementary nucleotide sequence to said target sequence, wherein said target sequence comprises sequences known to regulate gene expression.
- 31. A method for identifying an expression modulating fragment of the

 Staphylococcus plasmid comprising the step of comparing a database comprising the
 nucleotide sequences SEQ ID NO: 3703 SEQ ID NO: 3772 or fragments thereof with a
 target sequence to obtain a nucleic acid molecule comprised of a complementary nucleotide
 sequence to said target sequence, wherein said target sequence comprises sequences known to
 regulate gene expression.

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